Exhibit C

IN THE UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF VIRGINIA
ALEXANDRIA DIVISION

United States of America, *et al.*,

Plaintiffs,

v

Google LLC,

Defendant.

Case No. 1:23-cv-00108

HON. LEONIE H. M. BRINKEMA

EXPERT REBUTTAL REPORT OF
TIMOTHY SIMCOE, PH.D.

FEBRUARY 13, 2024

[redacted]

V.A. [redacted]

27. In my Initial Report, [redacted].[34]

28. [redacted].[35] [redacted]

29. It is the elasticity of demand for the product, and not the price sensitivity of individual customers, that determines the incidence of a tax or an overcharge. To understand this point, consider the gasoline marketplace. Some customers are less sensitive to the price of gasoline and

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31 *See* Chevalier Report, Section V.B.1., ¶ 137 [redacted]

32 *See* Simcoe Initial Report, Section IV.B.1. and IV.B.2.

33 *See* Chevalier Report, Section V.B.1., ¶ 136 [redacted]

34 *See* Chevalier Report, Section V.B.1., Figure 28 and Figure 29.

35 *See, e.g.*, Timothy J. Besley and Harvey S. Rosen, "Sales Taxes and Prices: An Empirical Analysis," *National Tax Journal* 52, no. 2 (1999): 157–178; *see also,* Sophia Delipalla and Owen O'Donnell, "Estimating tax incidence, market power and market conduct: The European cigarette industry," *International Journal of Industrial Organization* 19, no. 6 (2001): 885–908.

others are more price sensitive (e.g., because they can commute by bicycle rather than car). If a gas tax is introduced, and the retail price rises from $1.00 per gallon to $1.10 per gallon, while the gas station's revenue falls to $0.90 per gallon, then 50 percent of the tax incidence falls on sellers and 50 percent on buyers, regardless of whether an individual buyer is more or less price sensitive.[36] Ultimately, the price sensitivity of each gasoline buyer will contribute to determine the gasoline price after a tax is introduced, but the price that each of those individuals faces is the same market price for all gasoline buyers.

30. As for the question of whether and how to group individual advertisers for the purpose of estimating the demand elasticity, it is not uncommon for economists to estimate a demand curve for a group of products that are reasonable substitutes. Economists regularly estimate supply and demand curves from heterogeneous groups of buyers and sellers, and standard economics textbooks explain how this is done.[37] Thus, while it is possible to study heterogeneity in tax incidence—between gas stations for example—that does not prevent economists from estimating aggregate supply and demand elasticities and using those estimates to measure the average incidence of a tax.[38]

31. Prof. Lee shows that [redacted].[39] [redacted].[40] [redacted].

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[36] As explained in my Initial Report, an overcharge analysis holds quantities fixed at the as-is level. *See* Simcoe Initial Report, Section IV., ¶ 128.

[37] Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization*, 4th ed. (Pearson: Essex, 2015), 85–88; *see also*, Judith Chevalier and Austan Goolsbee, "Are Durable Goods Consumers Forward-Looking? Evidence From College Textbooks," *The Quarterly Journal of Economics* 124, no. 4 (2009): 1853–1884.

[38] Justin Marion and Erich Muehlegger, "Fuel tax incidence and supply conditions," *Journal of Public Economics* 95, no. 9–10 (2011): 1202–1212.

[39] *See* Lee Initial Report, Section II.B.3.; *see also*, Lee Initial Report, Section IV.B.

[40] *See* Israel Report, Sections IV.C.2 and IV.C.3.

[redacted][46]

34. [redacted]

35. With respect to CPMs, [redacted][9] I have performed my own calculations that show [redacted]

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45 *See* Chevalier Report, Section V.A.1., ¶ 67 [redacted]

46 For example, if the price of non-US impressions decreased, this would cause non-FAA advertisers to win these impressions at lower prices, putting downward pressure on the prices of US impressions.

47 [redacted] *See* Chevalier Report, Section V.B.1.a.

48 [redacted]

49 *See* Figure 14 in Appendix D.2. *See also,* Chevalier Report, Section V.A.2.c.

[redacted] This difference is [redacted]

36. Because advertiser similarity does not influence the elasticity of demand or supply for open web display impressions, [redacted]

V.C. [redacted]

37. Figures 28 and 29 in Prof. Chevalier's Expert Report purport to show [redacted]

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50 [redacted] *See* George Casella and Roger L. Berger, *Statistical Inference*, 2nd ed. (Cengage Learning, 2002) Section 11.2.6 Partitioning Sums of Squares. *See also,* Figure 14.

51 *See* Figure 14 in Appendix E.2. [redacted]

52 *See* Chevalier Report, Section V.B.1.b.

53 [redacted] *ee* Israel Report, Section III.C.

47. [redacted] First, however, it is useful to reiterate the conceptual basis for my Comparables Approach, as explained in my Initial Report.[70]

48. The Comparables Approach selects an appropriate set of *transactions* and uses the average price of those transactions as a benchmark. The comparables used in my Initial Report are all open web display advertising transactions on non-AdX ad exchanges. Because I do not have access to impression-level data, I compute the *market-wide average* take rate as a revenue-weighted average of the take rates for transactions on all non-AdX ad exchanges that produced usable data.[71]

49. [redacted] I did not include transactions in my analysis on the basis of comparing exchanges. Nor do I assume that all non-AdX exchanges are identical. The key assumption of the Comparables Approach is that *after pooling* all of the transactions sold by non-AdX exchanges (which were not accused of any exclusionary conduct) the market-wide average take rate is a conservative estimate of the but-for AdX take rate.[72]

VI.A.1. Prof. Chevalier's Opinions Do Not Undermine the Validity of my Comparables Approach

50. This section explains how my Comparables Approach is based upon well-accepted economic methods and principles. I first explain why my approach produces a reliable, albeit conservative, estimate of the but-for take rate. I then demonstrate that my comparable but-for take rate is robust to small changes in assumptions.

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70 *See* Simcoe Initial Report, Section IV.A.1.

71 My Initial Report explained how it is possible to calculate the weighted average using aggregated exchange-level data, even if the impression level data are not available. *See* Simcoe Initial Report, Section IV.A.1., FN 195.

72 *See* Simcoe Initial Report, Section IV.A.1., ¶¶ 143–148.

because Google's conduct could influence the prices charged by other firms in the same market. As I explained in my Initial Report and in Section III above, if anything, [redacted]. In summary, my Comparables Analysis is a "yardstick" approach that produces conservative estimates of the but-for take rate.

53. [redacted] Given the long period of time during which Google's exclusionary conduct took place, and the fact that its conduct is ongoing, I do not have access to data that would allow me to implement the benchmark approach. However, my Event Study Approach is similar to the "difference in differences" approach [redacted] in that it compares Google to other firms, before and after the implementation of UPR.[78] The Event Study approach has the added benefit of using exchange "fixed effects" to control for any unmeasured quality differences that may exist between exchanges.[79] Notably, my Comparables Approach and Event Study Approach yield very similar estimates of the but-for take rate.[80]

54. In performing my Comparables Analysis, I relied on the data produced in this case to form my conclusions. In particular, [redacted]

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76 *See* Section III.

77 *See* Chevalier Report, Section V.A.2.a., FN 156.

78 Unlike the difference-in-differences methodology, my Event Study Approach does not assume that non-AdX exchanges provide an unbiased estimate of the counterfactual change in impression shares for AdX, given that shares of all exchanges in the relevant market are simultaneously determined.

79 *See* Simcoe Initial Report, Section V.A.2., ¶ 229.

80 *See* Simcoe Initial Report, Figure 22. Likewise, my Event Study analysis is conservative, since it analyzes only one piece of Google's at-issue conduct, UPR. *See* Simcoe Initial Report, Section IV.A.2.

[redacted].[81] [redacted]

[redacted][82]

55. [redacted]

56. [redacted]e

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81 [redacted] *ee* Simcoe Initial Report, Appendix C.2., ¶ 275; *see also,* Lee Initial Report, Section IV; *see also*, [redacted] *see also*, [redacted]

82 *See* Lee Initial Report, Figure 47.

83 *See* Simcoe Initial Report, Sections IV.A.1. and V.A.1. [redacted]

84 *See* Simcoe Initial Report, Section IV.A.1.a., ¶ 139.

85 *See* Simcoe Initial Report, Section IV.A.1.a., ¶ 140.

86 *See* Simcoe Initial Report, Section IV.A.1.a., ¶¶ 141–143.

87 *See* Chevalier Report, Section V.A.2.f. [redacted]

VI.A.3. [redacted]

72. [redacted][110]

73. [redacted]

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[108] *See* Chevalier Report, Section V.A.2.a., ¶ 73 [redacted]

[109] *See* Chevalier Report, Section V.A.2.a.

[110] *See* Chevalier Report, Section V.A.2.a., ¶ 73 [redacted]

Economists use the term *differentiated products* to describe products that consumers perceive to differ from one another. When products are differentiated, at the same price, consumers might prefer one product to another. For example, Coca-Cola and Pepsi are similar products that would reasonably be considered to compete with one another in the same economic market, though consumers often express a (sometimes strong) preference for one brand of cola versus the other. Markets with differentiated products are a common area of study in Industrial Organization. For example, economists have modeled competition between differentiated products such as automobiles and cereal.

A popular economics textbook describes modeling competition between restaurants using a representative consumer model with monopolistic competition—the same type of economic model I use in my overcharge model. As the textbook explains, "[t]his model might be used to study the restaurant market, in which firms produce differentiated products (such as different ethnic cuisines), but all compete for the same customers." Though consumers may perceive restaurants to offer differentiated services, like ad exchanges, they compete for the same set of customers and are thus appropriate to model as competing in the same economic market.

See Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization*, 4th ed. (Pearson: Essex, 2015), 225–226; *see also,* Aviv Nevo, "Measuring Market Power in the Ready-To-Eat Cereal Industry," *Econometrica* 69, no. 2 (2001): 307–342; *see also,* Steven Berry, James Levinsohn, and Ariel Pakes, "Automobile Prices in Market Equilibrium," *Econometrica* 63, no. 4 (1995): 841–890.

[redacted]

74. [redacted].

75. [redacted]

76. [redacted]

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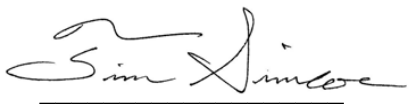
111 [redacted]

112 *See* Chevalier Report, Exhibit 16.

113 *See* Simcoe Initial Report, Section III.A.1., ¶ 70 [redacted]

Timothy Simcoe, Ph.D.



Expert Rebuttal Report of T. Simcoe February 13, 2024)--Errata

Page	Paragraph	Footnote	Original	Corrected	Reason
6	17	15	"*See* Simcoe Initial Report, Section IV.B.2., ¶ 190"	"*See* Simcoe Initial Report, Section IV.B.2., ¶¶ 190**–191**."	Clarification
9	23	25	"Section **IV.D.1.**"	"Section **V.C.3.**"	Clarification
9	24	26	"*See* Lee Initial Report, **Section IV.A.1, ¶ 254"**	[[Remove]]	Clarification
13	34	-	"Even within one advertiser, the target audience, budget, and **objectives of an advertising campaign can be diverse,** and…"	"Even within one advertiser, the target audience, budget, and **objectives of advertising campaigns can be diverse,** and…"	Clarification
14	33	45	[redacted]	[redacted]	Typo
24	55	83	"*See* GOOG-DOJ-03901903, at -9**18"**	"*See* GOOG-DOJ-03901903, at -9**20"**	Clarification
24	55	84	"*See* Simcoe Initial Report, Section IV.A.1**.a.**, ¶ 139."	"See Simcoe Initial Report, Section IV.A.1., ¶ 139."	Clarification
24	55	85	"*See* Simcoe Initial Report, Section IV.A.1**.a.**, ¶ 140."	"See Simcoe Initial Report, Section IV.A.1., ¶ 140."	Clarification
24	55	86	"*See* Simcoe Initial Report, Section IV.A.1**.a.**, ¶¶ 141–143."	"*See* Simcoe Initial Report, Section IV.A.1., ¶¶ 141–143."	Clarification
35	85	126	[redacted]	[redacted]	Clarification
36	85	130	"Q. **And** how, if at all..."	"Q. How, if at all..."	Clarification
36	86	133	'[redacted]	[redacted]"	Clarification
39	94	145	[redacted]	[redacted]	Clarification
46	109	170	"NBER Technical Working Paper Series (1998)…"	"NBER Technical Working Paper Series**, no. 221** (1998)…"	Clarification
47	112	175		"*See* Chevalier Report, Figures 19 and 20."	Clarification
48	116	180	"Chevalier Report, Section V.A.3.e., ¶ 127."	"Chevalier Report, Section V.A.3.e., ¶¶ 127**-128**."	Clarification
49	117	184		"Simcoe Initial Report, Figure 28."	Clarification
62	127	196	[redacted]	[redacted]	Typo
63	130		"130.It…"	"130. It…"	Typo
63	130	200	"Chevalier Report, [redacted]l-Stack Revenue Shares Workpaper, at tab**s** "full_stack_exhibit""	"Chevalier Report, [redacted]	Typo
63	132	201	"Steven T. Berry, "Estimating Discrete-Choice Models of Product Differentiation," The RAND Journal of Economics (1994): 242-262."	"Steven T. Berry, "Estimating Discrete-Choice Models of Product Differentiation," The RAND Journal of Economics **25, no. 2** (1994): 242-262."	Typo
68	Figure 14	-	'[redacted]	[redacted]	Clarification

February 20, 2024